Section 7
Facility Plan

7.1 Introduction

This Facility Plan has been prepared for the development of a Subtitle D landfill in Camden County, North Carolina. The proposed Black Bear Solid Waste Facility will be owned and operated by Black Bear Disposal, LLC, a wholly-owned subsidiary of Waste Industries USA, Inc. As of November 1, 2004, Black Bear Disposal, LLC owns 1,037 acres of land located in the northeast corner of Camden County, North Carolina which will be developed into a variety of end uses. The landfill, buffers and support facilities will occupy 704 of those acres. The Subtitle D landfill will be comprised of a 490-acre disposal footprint that will be developed in five phases and will be located a minimum of 3,000 feet from the centerline of U.S. Highway 17 in accordance with the franchise agreement. The proposed land use for the remainder of the 1,037 acres include 50 acres future commercial, 91 acres future light industrial, and 192 acres wildlife conservation/wetlands. The future commercial areas may be used for borrow material in support of landfill operations.

The Black Bear Solid Waste Facility is a comprehensive solid waste facility that will accept only wastes permitted by the North Carolina Department of Environmental and National Resources and in accordance with the franchise agreement with Camden County. The current plans for the Black Bear Solid Waste Facility do not include a separate C&D landfill, but will include a 20-acre tire chip storage area. A recycling facility may be constructed at the landfill site as allowed in the franchise agreement with Camden County. If the recycling facility is constructed, it shall be permitted and operated according North Carolina Department of Environment and Natural Resources (NCDENR) requirements.

Rule .1618 (c)(6) of the North Carolina Solid Waste Management Rules requires that a conceptual plan for the development of the facility including drawings and a report be prepared which incorporates the summary findings for the geologic and hydrogeologic report as set forth in Subparagraph (a)(13) of Rule .1623 and includes drawings and reports described in Rule .1619 (d)(1), (d)(2), (e)(1), (e)(2), (e)(3), and (e)(5). The facility plan includes the following drawings and reports:

- Site development drawings, Rule .1619 (d)(1): The Site Development drawings shall delineate landfill units, leachate facilities, and locate all solid waste management facilities and facility infrastructure;
- Landfill Construction, Rule .1619 (d)(2): The Landfill Construction drawings shall delineate the limits of grading, stockpile areas, define the phases of development, propose base grades for the units, delineate the location of access roads, sediment basins, leachate pipelines and storage, and other structures related to its operation, and propose final contours and facility features for closure;

- Waste Stream, Rule .1619 (e)(1): The report shall include the types of waste specified for disposal, average monthly disposal rates and estimates of variance, area served by the facility, procedures for segregated management at different on site facilities, and equipment requirements;
- Landfill Capacity, Rule .1619 (e)(2): The facility plan report shall include an analysis of landfill capacity and soil resources. The analysis will provide accurate volumetric estimates of the following:

  1. Total operating capacity;
  2. Operating capacity for each phase of development;
  3. In-place ratio of waste to soil;
  4. Available soil resources from on site or specific off site sources;
  5. Required quantities of soil for landfill construction, operation, and closure;
  6. The estimated operating life of all MSWLF units in years.

- Containment and environmental control systems: Rule .1619 (e)(3), A general description of the systems designed for proper landfill operation, system components, and corresponding functions shall be provided.
- Special engineering features, Rule .1619 (e)(5).

7.2 Facility Drawings

Rule .1619 (d): A set of facility drawings have been prepared in compliance with Rule .1619 (d). These drawings include conceptual site development and landfill construction sheets.

7.2.1 Site Development

Two drawings were prepared on topographic maps representative of existing site conditions. The first drawing, SD-1, provides existing topographic and structural features of the proposed Subtitle D landfill property. Drawing SD-1 provides information on delineated wetlands, existing piezometers, and on site easements. Drawing SD-2 illustrates the proposed development plan for the property. The perimeter access road; cell locations, and leachate storage facilities are shown on SD-2. A phase development table has been provided, on Drawing SD-2, to depict the planned progression for construction and operation of the Subtitle D landfill. The conceptual design allows for the landfill to be developed in four lateral phases. After 24 years of operation, the landfill will be fully developed from the standpoint of cell, construction. However, an additional 3 years of capacity will be provided by vertically expanding to the proposed final contours. The location restrictions and buffer requirements are indicated on SD-2.

7.2.2 Landfill Construction

All on site grading activities related to the construction and operation of the MSWLF units are shown on the landfill construction drawings. These grades are conceptual and are subject to change based on information obtained for the Design Hydrogeologic Report. The proposed base grades are shown on Drawings LC-1 through LC-4. The cell grades shown inside the liner limits represent ground elevation at the bottom of the clay liner. Grades shown outside the liner limits represent final grade. Stormwater control measures include thirty-seven sedimentation basins, drop inlets and pipes, and a perimeter access road ditch. The components of the leachate management system, which include collection pipes, pump stations, and storage tanks, are identified on Drawings LC-1 through LC-4. All material required for landfill construction will be obtained from off site sources. Generally, stockpile locations will be located within the landfill footprint; however, specific locations will be identified once the operational plan has been completed. The final closure grades are provided on Drawing LC-5.

7.3 Facility Report

This facility report contains discussions of the characteristics of the waste stream to be received at the landfill facility, the landfill capacity, containment and environmental control systems, and special engineering features as required by Rule .1619(e).

7.3.1 Waste Stream

This section contains a discussion of the characteristics of wastes received at the facility and facility specific management plans in accordance with Rule .1619(e) (1).

7.3.1.1 Types of Wastes Accepted

The proposed landfill will accept only wastes permitted by the North Carolina Department of Environmental and National Resources and in accordance with the franchise agreement with Camden County. These wastes include, but are not limited to, non-hazardous MSW, industrial waste (IW), C&D debris, land cleaning and inert debris (LCID) and other non-hazardous wastes that may be approved by the Division that are generated within the east coast service area described in paragraph 7.3.1.3 of this Facility Plan. Some wastes having appropriate properties may be used as alternate daily cover. These materials may consist of petroleum soils, sludges, foundry sands, and other materials suitable for use as daily cover. Waste hauling vehicles will be directed from the scale house to the landfill working face for disposal of all wastes accepted at the landfill.

7.3.1.2 Average Disposal Rates

The Black Bear Solid Waste Disposal Facility is anticipated to operate 308 days per year with an average daily disposal rate of 10,000 tpd for each day of operation. This is equivalent to an average yearly disposal rate of 3,080,000 tpy and an average monthly disposal rate of 257,000 tpm. Disposal rates may vary due to the ramping up of operations when the landfill opens, changing market conditions, seasonal

influences, and lower than expected waste volumes. Typically, average monthly disposal rates are not anticipated to fluctuate more than 25 percent from 257,000 tpm.

7.3.1.3 Area Served by Facility

The Subtitle D landfill will provide waste disposal capacity for a service area that extends from U.S. Interstate 75 (I-75) to the east coast. The population of the service area is over 108,900,000 based on 2001 Census Bureau data. The population number only includes the population in those counties located east of I-75 where the interstate passes through states. The proposed service area is shown in Attachment 7-1.

7.3.1.4 Procedures for Segregated Management

All waste accepted at the Black Bear Solid Waste Facility will be disposed of within the 490-acre landfill, therefore waste segregation will not be required. A 20-acre tire chip storage area will be used to store processed tire chips prior to their use in landfill operations. Wastes shall not be placed within the tire chip storage area. The franchise agreement with the Camden County states that a recycling facility may be established at the landfill site. If Black Bear Disposal, LLC elects to construct such a facility, recyclables will be segregated from waste and all waste materials will be disposed within the landfill in accordance with Division Rules and permit requirements.

7.3.1.5 Landfill Equipment

Standard landfill equipment will be used at the proposed facility. This may include, but not be limited to, equipment such as:

- Trash Compactors
- Dozers
- Graders
- Excavators
- Water truck
- Backhoes
- Fuel truck
- Pick up trucks
- Dump trucks
- Transfer Trailer Tippers

7.3.2 Landfill Capacity

The estimated gross capacity (waste, daily cover and final cover) of the landfill will be approximately 102,400,000 cubic yards (cy) of which approximately 2,400,000 cy will be used for the construction of final cover over the landfill. The remaining

100,000,000 cy is available for waste and daily cover. The estimated gross capacity of the landfill is subject to revision during final design and permitting.

It is anticipated that an in-place ratio of waste to cover material will be 11 to 1. This translates to 8,333,000 cy of cover material necessary for daily cover and 91,667,000 cy available for waste disposal. For an in-place waste density of 1,800 lb/cy, typical for landfill operations, the landfill will have capacity for approximately 82,500,000 tons of waste.

Using the anticipated average daily disposal rate of 10,000 tpd for 308 days of operation per year, or 3,080,000 tpy, the expected active life of the landfill is approximately 27 years. The active life of the facility may be extended beyond 27 years due to ramping up of operations when the landfill opens, fluctuations in daily disposal rates, improved compaction, leachate recirculation, and other variables. Extension of the active life of the landfill beyond the duration of the 30-year franchise agreement with Camden County, dated November 4, 2002, will require a new franchise agreement with the County. The operating capacity for each phase shown on sheets LC 1 is:

Phase	Gross Capacity (yd^3)	Anticipated Phase Life
1	21,845,000	6 years
2	24,891,000	6 years
3	24,067,000	6 years
4	23,659,000	6 years
5	7,938,000	3 years
Total	102,400,000	27 years

Approximately 3,200,000 cubic yards of clay and drainage materials will be required to construct the base liner system. Perimeter access road and berm construction and preparation of the cell base grades (clay liner subgrade) will require 9,824,000 cubic yards of backfill material. Due to the lack of historical site data the seasonal high ground water elevation is conservatively assumed to be the same as existing ground elevation. In order to meet the 4-foot separation requirement, the base liner system is currently shown to be constructed a minimum of 4 feet above existing grade. Therefore, the landfill construction may not require excavation. However, as additional ground water data is collected during additional site investigation work

for the Permit to Construct application and during the operation of the landfill, the base grades for Phase I and future phases will be revised if it is determined that the seasonal high ground water elevation is lower than existing grade.

The amount of fill material required for cell base grade construction is based upon estimates of foundation settlement for the maximum height of the landfill. The preliminary settlement analysis estimates approximately six feet of settlement in the center of the landfill (the location of the greatest depth of waste) and no settlement along the limits of waste. It should be noted that this estimate is based on very conservative assumptions regarding the compressibility of the foundation soils. A more detailed settlement analysis will be performed for each phase of landfill construction based on more extensive subsurface investigation prior to final design.

The majority of fill material will be provided from off site sources. Approximately 26,500,000 cubic yards of fill material will be needed to construct the landfill structures, provide daily and intermediate cover, and install a final cover. This estimate does not account for the use of alternative cover materials that will be employed by Black Bear Disposal, LLC, therefore it is considered to be an upper limit estimate.

7.3.3 Containment and Environmental Control Systems

Base Composite Liner System

A base composite liner system will be designed and constructed to capture leachate generated by the landfill. The composite liner will consist of a prescriptive Subtitle D liner system (i.e.; compacted subgrade, 24-inches of compacted soil with a maximum permeability of 1x10-7 cm./sec., and a 60 mil textured high-density polyethylene (HDPE) liner) or an equivalent alternative liner system as allowed by State rules.

Leachate Collection and Storage

A leachate collection system will be designed and installed above the base liner. This system will ensure that the hydraulic head on the base liner does not exceed 12-inches. The collection system will be composed of a 24-inch sand drainage layer with a minimum permeability of 1x10-3 cm/sec, a drainage net layer, and perforated collection pipes installed in aggregate trenches. The base grades of the landfill will be designed with a minimum, post settlement cross slope of two percent. Leachate will flow vertically through the sand drainage layer and laterally through the drainage net layer to the collection pipes. Modeling of the system will be performed to account for additional capacity requirements due to the recirculation of leachate.

The collection pipes will transport leachate by gravity flow at a minimum post settlement slope of 0.5 percent. The collection pipes will penetrate the liner system and connect to a header pipe system located within the containment berm fill slope that will transport leachate to sixteen designated pump stations around the perimeter of the landfill. The pump stations will feed a force main which will deliver the

leachate to the three onsite leachate storage tanks. The operating goal for Black Bear Disposal, LLC is to recirculate 100% of the generated leachate.

Closure Cap System

A closure cap will be designed and constructed to reduce the infiltration of precipitation into the landfill. The composition of the closure cap will be 18-inches of protective cover soil with a maximum permeability of 1x10-3 cm./sec underlain by geocomposite drainage net and 30-mil linear low-density polyethelyne (LLDPE) liner. A 6-inch layer of soil with sufficient organic content to sustain vegetative growth will be placed above the protective cover. The closure cap will have a maximum constructed side slope grade of three horizontal to one vertical (3:1), and, a minimum top slope of five percent. An alternative cap demonstration will be provided with the permit to Construct Application for Division approval of the 3:1 closure slopes.

Sedimentation and Erosion Control

Prior to construction of the landfill facility, a Sedimentation and Erosion Control Plan will be submitted to the Department of Environmental Management, Land Quality Section for approval. During construction of the facility, and during landfill operations, stormwater runoff will be routed to sedimentation basins. Internal stormwater berms will be utilized to minimize the amount of stormwater that comes in contact with waste. Stormwater collected within the landfill cells will be pumped to the perimeter access road drainage ditch and conveyed to one of the eight sedimentation basins. Once each portion of the landfill has reached final grade and received the closure cap, the storm water runoff will be directed to the same sedimentation ponds as described above. Temporary erosion control measures, such as silt fences, fast germinating vegetation, rock check dams, etc. will be installed as necessary to reduce the amount of sedimentation and erosion during construction activities.

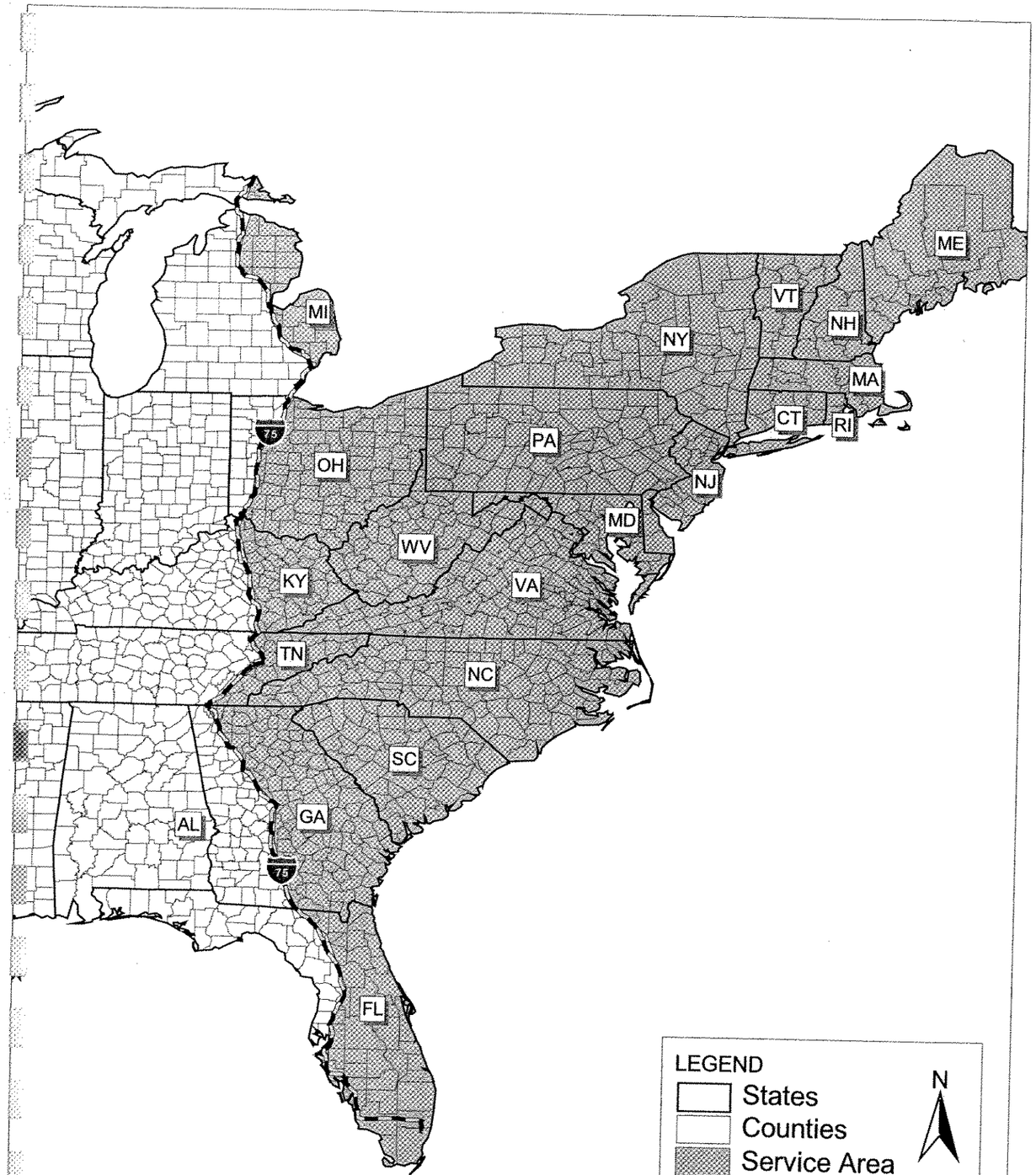
Landfill Gas Management

A landfill gas collection system will be installed to control the migration of methane and ensure that the methane levels at the landfill boundary are kept below the lower explosive limit (L.E.L). This system, in conjunction with the base liner and cap systems will also prevent the accumulation of methane in onsite structures. As part of the final closure procedures, landfill gas extraction wells will be installed in the landfill closure cap at a density of approximately one per acre. The captured gas will either be scrubbed and used as a fuel should an economical end user be found or it will be flared.

7.3.4 Special Engineering Features

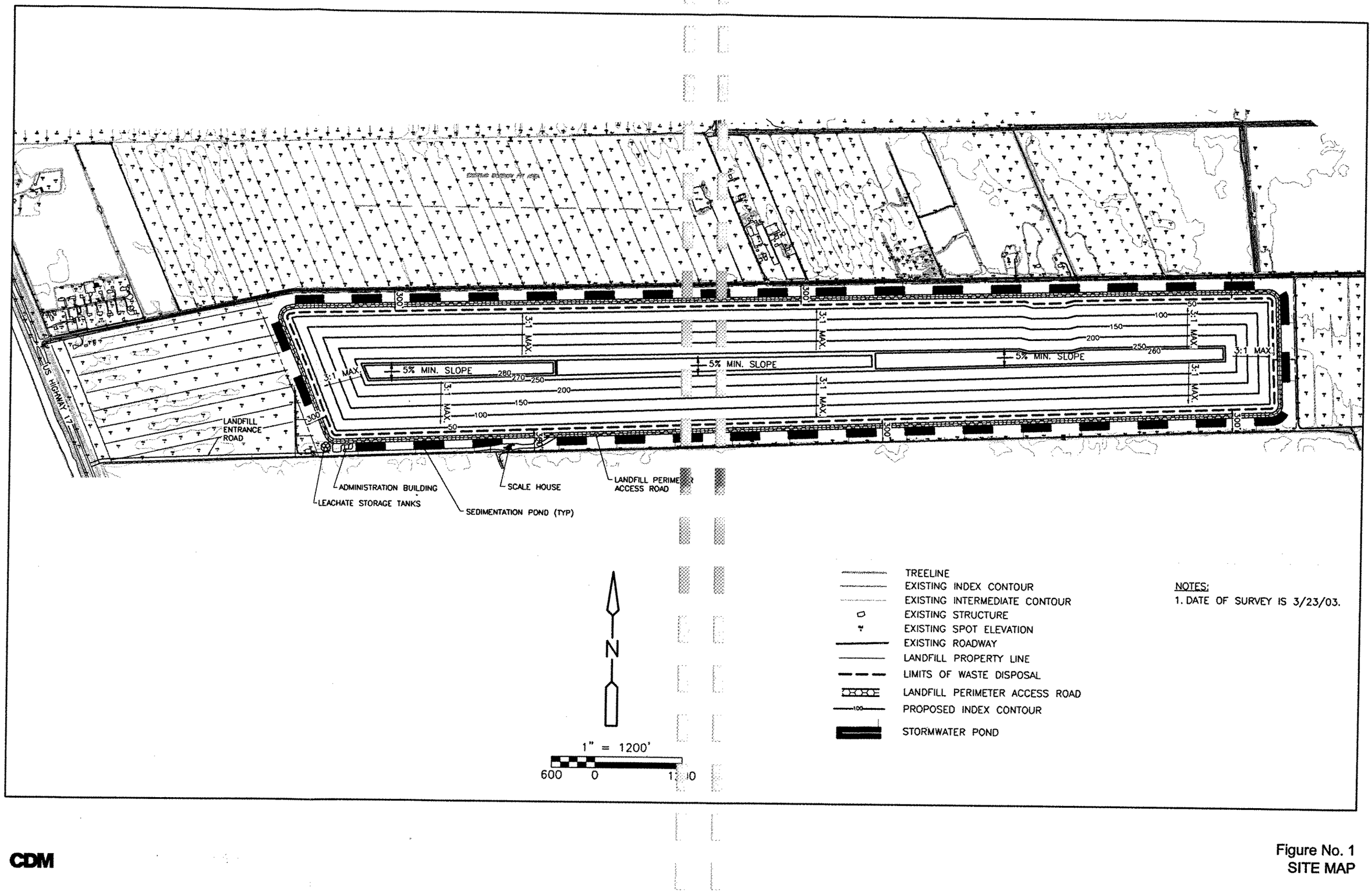
Black Bear Disposal, LLC intends to practice leachate recirculation at the Black Bear Solid Waste Facility as the primary means of leachate management. Bioreactor operation which entails addition of liquids other than leachate generated at the facility may be implemented in the future if or when appropriate State or federal regulations allow such activity. Leachate recirculation and bioreactor operation have

the potential of extending the operational life of the landfill. Extension of the active life of the landfill beyond the 30-year term of the franchise agreement will require a new franchise agreement with Camden County.



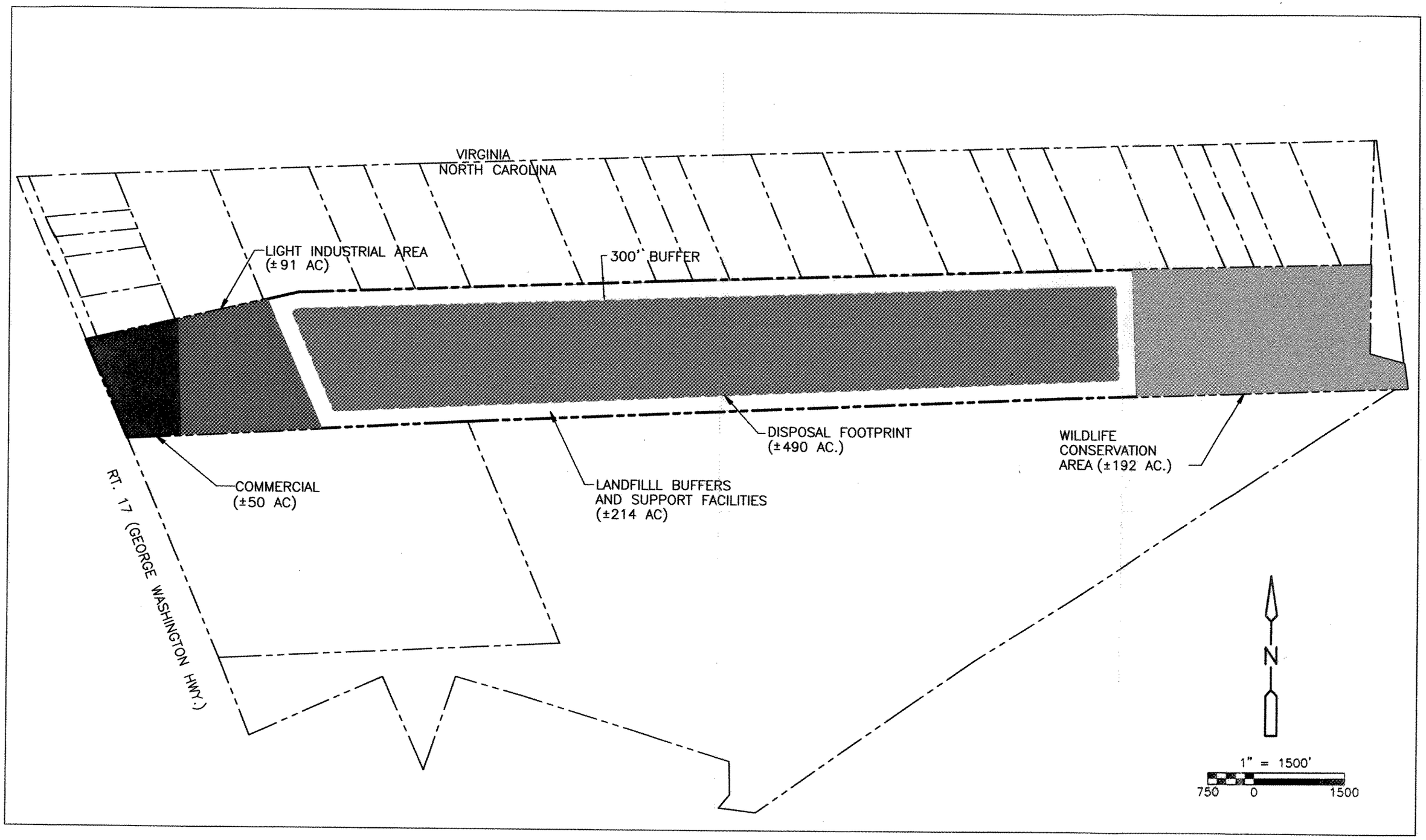
Attachment 7-1 Figure
Wate Industries - Black Bear Disposal, LLC
Proposed Service Area

CDM



CDM

Figure No. 1
SITE MAP



CDM

Figure No. 2
PROPOSED LAND USE MAP